UNITED STATES PATENT AND TRADEMARK OFFICE

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	EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05/03/2004</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-38</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) <u>37 and 38</u> is/are allowed.

6)☒ Claim(s) <u>1-6,9,12,15-17,20-25,30,33 and 34</u> is/are rejected.

7)☒ Claim(s) <u>7,8,10-11,13-14,18-19,26-29, 31-32 and 35-36</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>26 May 2000</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Applicant's Remarks

1.   Applicant's arguments submitted on 05/03/04 with respect to claims 1-38 have

been reconsidered but are not deemed persuasive for the reasons set forth below.

Applicant argues (under REMARKS section) that Bowman does not teach

managing availability of server components on particular servers by issuing a content

management directive.

Examiner respectfully disagrees. Bowman teaches:

*"A system and method are provided for distributing incoming requests from a user interface amongst a
client and server components for optimizing usage of resources. Incoming requests are first received and stored by
an activity module. The activity module instructs a client to handle a first subset of the requests and passes a
second subset of the requests on to a utilization-based load balancer. The second subset of the requests are stored
on the load balancer, and an availability of server components is determined and a listing of available server
components is compiled. A determination is made as to which server component on the listing of available server
components is most appropriate to receive a particular request. Each particular request of the second subset of
requests is sent to the selected server component determined to be most appropriate to receive the particular
request.*

*In one embodiment of the present invention, the determination of which server component is the most
appropriate may be performed by allocating the requests on a round-robin basis whereby requests are assigned to
consecutive server components by traversing along the listing of available server components. In another
embodiment of the present invention, the determination of which server component is the most appropriate may also
include calculating an amount of utilization that each available server component or the client is currently
experiencing.*

*In one aspect of the present invention, the amount of utilization of each available server components may
be calculated based on current CPU utilization, kernel scheduling run-queue length, current network traffic at a
node to the server component, and/or a number of requests currently being serviced.*

*In another aspect of the present invention, a request may be rerouted to a different available server
component upon a crash of the selected server component. In a further embodiment of the present invention, the
server components may be saved in a persistent store, wherein a check is made to determine whether a connection
to a server component needs to be reestablished. "*

Bowman teaches managing availability of server components on particular

servers (i.e. "A determination is made as to which server component on the listing of

available server components is most appropriate to receive a particular request." ... "the

determination of which server component is the most appropriate may also include

calculating an amount of utilization that each available server component or the client is

currently experiencing." The previous text excerpts clearly shows that the load balancer

determines/manages availability of servers for a particular request i.e. a particular

dataset requested. If the data set requested were unique in a particular server then the

question of availability would not arise. Therefore we are talking about the same data

set requested that is available in multiple servers. Since they are available in multiple

servers the load balancer looks at the utilization of the multiple servers for the most

appropriate server.) (col 2, lines 17-57) by issuing a content management (i.e. "the

determination of which server component is the most appropriate may also include

calculating an amount of utilization that each available server component or the client is

currently experiencing." The previous text excerpts clearly indicate that the load

balancer calculates the utilization of the server components in terms of the request and

therefore has to issue a directive (or a direction/guidance toward an action) to calculate

the utilization of the server component (or the content within the server because the

user is only interested in retrieving datasets from the server), which includes number of

requests among other things. By doing this it manages the content/dataset of the server

or access to the content in the server component.) directive (col 2, lines 17-57).

Applicant argues (under REMARKS section) that Bowman does not teach issuing

content management directives with respect to the data sets so as to maximize efficient

access to the data sets.

Examiner respectfully disagrees. Bowman teaches maximum efficiency in terms

of utilization of the server components which includes among other things number of

requests currently being serviced (col 2, lines 17-57).

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 1-6,9,12,15-17,20-25,30,33 and 34 are rejected under 35 U.S.C. 102(e)

as being anticipated by Bowman-Amuah (U.S. Patent No. 6,578,068 and Bowman

hereinafter).

As to claims 1,12,21 and 30, Bowman teaches a system for managing content

across storage systems, the system comprising: (a) one or more storage systems

containing data sets (Abstract; col 2, lines 18-57); and (b) one or more indexing systems

(i.e. the utilization-based load balancer) (Abstract; col 2, lines 18-57), each indexing

system comprising a data store (i.e. it keeps a listing of available server components

and the server component, which is most appropriate to receive a particular request; the list can be kept in any conventional software storage system e.g. file, memory or database tables or any other established data structures e.g. list, stack, queue etc. and itself is not a patentable subject matter because tables, data structures are long established software options to store data) (Abstract; col 2, lines 18-57) for storing usage information associated with data sets stored on the one or more storage systems (Abstract; col 2, lines 18-57) and a processor (i.e. both client and servers must have a processor to process anything) for performing the steps of: (i) tracking usage of the data sets contained on the one or more of storage devices (Abstract; col 2, lines 18-57); and (ii) issuing content management directives (i.e. managing/balancing the load/content) (Abstract; col 2, lines 18-57) with respect to the data sets so as to maximize efficient access to the data sets (Abstract; col 2, lines 18-57).

As to claims 2 and 20, Bowman teaches a communication network among the one or more storage systems and the one or more indexing systems (i.e. among the load balancer and the one or more server components) (Abstract; col 2, lines 18-57).

As to claims 3 and 22, Bowman teaches (A) monitoring a data set access request between an indexing system (i.e. the load balancer) and a storage device system (Abstract; col 2, lines 18-57); and (B) updating usage information (i.e. the load balancer keeps track of the utilization, number of requests for particular database/server and various other utilization calculation and must have updated information to select the

most appropriate server component/database server/ web server) associated with a

data set corresponding to the monitored data set access request (Abstract; col 2, lines

18-57).

As to claims 4 and 23, Bowman teaches that the usage information in the data

store is a table of records (i.e. it keeps a listing of available server components and the

server component, which is most appropriate to receive a particular request; the list can

be kept in any conventional software storage system e.g. file, memory or database

tables or any other established data structures e.g. list, stack, queue etc. and itself is

not a patentable subject matter because tables, data structures are long established

software options to store data) (Abstract; col 2, lines 18-57) correlating data sets with

data set access request information (Abstract; col 2, lines 18-57).

As to claims 5,6,24 and 25, Bowman teaches that the data set access request

information correlated with a data set is a request rate (i.e. the number of requests)

associated with the data set (Abstract; col 2, lines 18-57).

As to claims 9 and 16, Bowman teaches that each storage system comprises a

storage processor (Abstract; col 2, lines 18-57).

As to claims 11,17,29 and 34, Bowman teaches acknowledging processing of the received directive (i.e. sending acknowledgement is an inherent characteristic of any data communications protocol) (Abstract; col 2, lines 18-57).

As to claims 15 and 33, Bowman teaches that the management processor (i.e. the load balancer) performs the monitoring of data set access delegations (Abstract; col 2, lines 18-57).

Allowable Subject Matter

4.   Claims 37 and 38 are allowed over the prior art of record.

5.   Claims 7,8,10-11,13-14,18-19,26-29, 31-32 and 35-36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record Bowman-Amuah (U.S. Patent No. 6,578,068 and Bowman hereinafter) does not disclose, teach or suggest the claimed limitations of (in combination with all other features in the claims) a system for managing content across storage systems, which includes (a) one or more storage systems containing data sets; and (b) one or more indexing systems, each indexing system comprising a data store for storing usage information associated with data sets stored on the one or more

storage systems and a processor for performing the steps of: (i) tracking usage of the

data sets contained on the one or more of storage devices; and (ii) issuing content

management copy, move and delete directives with respect to the data sets so as to

maximize efficient access to the data sets wherein the storage processor of a storage

system performs the steps, which includes (i) receiving a content management directive

from the one or more indexing systems; and (ii) manipulating a data set on the storage

system based upon the received directive as claimed in claims 7,8,10,13,18,26,27,28.

Conclusion

6.   **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded

of the extension of time policy as set forth in 37 CFR 1.136(a).

        A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Points of Contact

7.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Apu M. Mofiz whose telephone number is (703) 605-

4240. The examiner can normally be reached on Monday – Thursday 8:00 A.M. to 4:30

P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Dov Popovici can be reached at (703) 305-3830. The fax numbers for the

group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application should

be directed to the Group receptionist whose telephone number is (703) 305-9600.

Apu M. Mofiz
Patent Examiner
Technology Center 2100

June 17,2004